FOUNDATIONS OF SPORTS MEDICINE II

Curriculum Content Frameworks

Please note: All assessment questions will be taken from the knowledge portion of these frameworks.

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FOUNDATIONS OF SPORTS MEDICINE II

Grade Levels: 9-12
Course Code: 494060

Prerequisite: Sports Medicine I

Course Description: This course provides students with a more specific look at sports medicine from the perspective of the Athletic Trainer, that includes injury prevention and emergency management, tissue response to injury and treatment, psychosocial, and pharmacological issues specific to the physically active population. Students will gain a more complete understanding of sports medicine and the role it plays in the physically active community. It is recommended that Human Anatomy and Physiology and Sports Medicine I be completed prior to enrolling in this course.

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Unit 1: Sports Trauma
Hours: 8

Terminology: Arthritis, Biomechanical alteration, Bursitis, Diagnostic imaging techniques, Epiphyseal, Fasciitis, Fractures (fx), Hematoma, Luxation, Macrotrauma, Mechanism of injury, Microtrauma, Musculotendinous, Myositis ossificans, Osteochondral defects, Skin lesions, Sprain, Strain, Stress-strain curve, Subluxation

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
1.1 Define terminology	1.1.1 Prepare a list of terms with definitions
1.2 Review the basic structures involved in soft tissue injury	1.2.1 Categorize the most common skin lesions 1.2.2 Discuss possible treatments for each
1.3 List types of bone fractures	1.3.1 Explain how different types of fractures occur 1.3.2 Demonstrate initial care for a given fracture 1.3.3 Describe the structural characteristics that increase the injury potential for long bones
1.4 Discuss common cervical injuries	1.4.1 Describe brachial plexus compression versus stretch
1.5 List the mechanical properties of tissue as they pertain to the stress-strain curve	1.5.1 Use the stress strain curve to explain the role of external stress on a specific injury
1.6 List the five types of tissue loading	1.6.1 Give an example of an injury for each type 1.6.2 Creatively demonstrate each type of tissue loading 1.6.3 Compare and contrast traumatic vs. overuse injuries
1.7 Describe the musculotendinous unit	1.7.1 List and give examples of the three types of muscles in the body
1.8 Explain the relationship between poor body mechanics and injury potential	1.8.1 Give examples of specific injuries that can occur as a result of poor body mechanics

Unit 2: Bloodborne Pathogens and Basic Wound Care
Hours: 6

Terminology: Acquired Immune Deficiency Syndrome (AIDS), Bloodborne, Hepatitis, Human Immunodeficiency Virus (HIV), Occupational Safety and Health Administration (OSHA), Pathogen

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
2.1 Define terminology	2.1.1 Prepare a list of terms with definitions
2.2 Identify the various bloodborne pathogens	2.2.1 Discuss the risk of infection from each 2.2.2 Compare and contrast HBV vs. HIV 2.2.3 Identify ways to reduce the risk of infection
2.3 Explain the OSHA bloodborne pathogens standard	2.3.1 List the four requirements of the standard 2.3.2 Identify the personnel that are covered by the standard 2.3.3 Explain the importance of complying with the OSHA Standard
2.4 Outline the components of a written exposure plan	2.4.1 Define occupational exposure 2.4.2 List the components of the exposure training program that employees at risk must receive
2.5 Discuss basic wound care procedures	2.5.1 Identify types of open wounds 2.5.2 Demonstrate the ability to treat, close, and bandage open wounds

Unit 3: CPR-AED
Hours: 4

Terminology: Aneurism, Arrhythmia, Automatic External Defibrillator (AED), Bradycardia, Bradypnea, Cardiopulmonary Resuscitation (CPR), Catastrophic injury, Embolism, Myocardial infarction, Stroke, Sudden death syndrome, Tachycardia, Tachypnea

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate

Knowledge		Application	
3.1	Define terminology	3.1.1	Prepare a list of terms with definitions
3.2	List the steps involved in performing CPR	3.2.1	Demonstrate the skills of CPR with and without an AED per the rules of the American Heart association or Red Cross
3.3	Discuss the common causes of cardiopulmonary complications in sports	3.3.1	Explain how cardiac related deaths in sports might be prevented

Unit 4: On Field Management
Hours: 8

Terminology: Amnesia, Central Nervous System (CNS), Crepitus, Dermatome, HIPS, Level of Consciousness (LOC), Myotome, Primary survey, Peripheral Nervous System (PNS), Reflexes, Secondary survey, Traumatic Brain Injury (TBI)

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
4.1 Define terminology	4.1.1 Prepare a list of terms with definitions
4.2 Describe the components of an emergency action plan	4.2.1 Develop an emergency action plan for a specific facility
4.3 Describe the initial management of acute injuries	4.3.1 Perform a primary assessment and secondary assessment 4.3.2 Compare and contrast the signs and symptoms of shock versus hemorrhage 4.3.3 Demonstrate the appropriate actions to be taken in an “on field” emergency scenario 4.3.4 Correctly demonstrate the log roll technique 4.3.5 Perform the proper techniques for moving and transporting the injured athlete
4.4 List the three types of concussion	4.4.1 Explain the mechanisms of injury for each type 4.4.2 Describe current grading scales and return to play guidelines for concussion 4.4.3 Explain how repetitive concussion syndrome can lead to Traumatic Brain Injury

Unit 5: Psychosocial
Hours: 4

Terminology: Anxiety, Counselor, Five stages of grief, Imaging, Psychiatrist, Psychologist, Referral

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
5.1 Define terminology	5.1.1 Prepare a list of terms with definitions
5.2 Identify the psychological reactions one may see in the ill or injured athlete	5.2.1 Analyze the athlete's psychological response to injury 5.2.2 Apply Kübler-Ross's grief model to the psychological reaction of an injured athlete
5.3 List the reasons why social support is important to the injured athlete	5.3.1 Describe the role of the athletic trainer as a counselor to the injured athlete 5.3.2 Explain the basic differences between a counselor, a psychologist and a psychiatrist 5.3.3 Describe the role an athletic trainer plays when dealing with various psychological reactions

Unit 6: Basic Tissue Response
Hours: 8

Terminology: Acute, Afferent, Chemical mediators, Chronic, Edema, Efferent, Hemorrhage, Histamine, Homeostasis, Inflammation, Leukocyte, Nerve pathway, Necrosis, Neurotransmitter, Nociceptors, Pain, Phagocyte, Vascular response, Wolff's Law

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
6.1 Define terminology	6.1.1 Prepare a list of terms with definitions
6.2 Discuss the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve	6.2.1 Classify the physiological events that must take place during each phase 6.2.2 Identify the factors that may impede the healing process
6.3 Explain the physiology and psychology of pain	6.3.1 Discuss the modulation and transmission of pain 6.3.2 Contrast the different pain theories 6.3.3 List ways to assess pain

Unit 7: Introduction to Modalities

Hours: 5

Terminology: Contraindication, Electrical modality, Ground fault circuit interrupter, Hydrotherapy, Indication, Light modality, Manual therapy, Parameter, Protocol, Therapeutic ultrasound, Thermal modality

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do	
Knowledge	**Application**
7.1 Define terminology	7.1.1 Prepare a list of terms with definitions
7.2 Discuss the development and delivery of a treatment protocol	7.2.1 Describe the problem solving approach 7.2.2 Create possible goals with the use of modalities
7.3 Compare and contrast thermal, electrical, and mechanical agents	7.3.1 Discuss appropriate applications of hot and cold modalities 7.3.2 Outline the various waveforms and their applications concerning electrical modalities 7.3.3 Identify mechanical modalities and their purpose 7.3.4 Create a comprehensive modality protocol for a specific sports injury

Unit 8: Basic Pharmacology
Hours: 6

Terminology: Barbiturates, Cardiac drugs, Diuretics, Drug distribution, Gastrointestinal, Infection deterrents, Nasorespiratory drugs, Nomenclature, NSAIDs, Over the Counter drugs (OTC), Pain relievers, Pharmacology, Steroids, Stimulant

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate
Knowledge	**Application**
8.1 Define terminology	8.1.1 Prepare a list of terms with definitions
8.2 Describe the types and uses for various cardiopulmonary drugs	8.2.1 Discuss the affects of using diuretics 8.2.2 Explain how beta-receptor antagonists work 8.2.3 Distinguish the need for bronchodilators and respiratory anti-inflammatory agents
8.3 Discuss drugs that are or act as hormonal agents	8.3.1 Define the various hormones and androgenic-anabolic steroids 8.3.2 Compare and contrast the benefits and adverse affects of steroids
8.4 Identify drugs that are designed to affect the metabolic processes of the body	8.4.1 List various non-steroidal anti-inflammatory drugs 8.4.2 Discuss how exercise affects the action of anti-inflammatory drugs 8.4.3 Define and discuss nutritional supplements within sports 8.4.4 Compare and contrast the delivery, absorption, and the metabolic processing of two anti-inflammatory drugs
8.5 List socially used drugs	8.5.1 Explain the effects of legal social drugs such as caffeine 8.5.2 Discuss the effects of illegal social drugs such as amphetamines and cocaine

Unit 9: Techniques in Evaluation
Hours: 6

Terminology: Active range of motion, Anatomical position, Clinical survey directional terminology, Cultural considerations, Manual muscle testing, Mechanical faillure, Passive range of motion, Resistive range of motion

CAREER and TECHNICAL SKILLS	
What the Student Should Know	What the Student Should be Able to Demonstrate

Knowledge		Application	
9.1	Define terminology	9.1.1	Prepare a list of terms with definitions
9.2	Demonstrate the anatomical position	9.2.1	Explain anatomical locations by using directional terminology
		9.2.2	Use appropriate movement terminology to describe anatomical movement
9.3	Explain the classifications of a basic manual muscle strength grading scale	9.3.1	Manual muscle test a specific muscle group and assign a classification accordingly
9.4	Explain the concept of resistive range of motion for a specific anatomical part	9.4.1	Demonstrate a resistive range of motion test for a specific anatomical part
9.5	Discuss cultural differences as it pertains to the manner in which an evaluation is conducted	9.5.1	Compare and contrast American, Latino, Asian, and Eastern European ideals concerning healthcare provision

Glossary
Unit 1: Sports Trauma

1. Arthritis – acute or chronic inflammation of a joint
2. Bursitis – inflammation of a bursa sac in a joint
3. Biomechanical alteration – alteration or abnormal movement within the body's normal locomotion
4. Epiphyseal – pertaining to the epiphysis of a long bone
5. Fasciitis – inflammation in the fascia
6. Fractures (fx) – to break a bone or cartilage
7. Hematoma – pool of clotted blood that occupies a small, confined space
8. Imaging techniques – methods used to view internal structure
9. Luxation – a complete dislocation of a joint
10. Macrotrauma – a single force, usually direct, that causes trauma to the body
11. Mechanism of injury – the event that stresses an anatomical structure past its normal limits
12. Microtrauma – repetitive forces, usually small, that cause trauma to the body
13. Musculoskeletal – the system of muscles and bones working together
14. Musculotendinous – pertaining to groupings of muscles and tendons
15. Myositis ossificans – ossification of bone inside muscle tissue
16. Neuropathologies – disease or injury to the nervous system
17. Osteochondral defects – a defect in bone or cartilage due to injury or illness
18. Skin lesions – an abnormal change in the skin caused by a wound or injury
19. Soft tissue trauma – injury that occurs to tissue other than bone or cartilage
20. Sprain – stretching and/or tearing of a ligament or capsular tissue in a joint
21. Strain – stretching and/or tearing of muscle or tendon
22. Subluxation – an incomplete dislocation of a joint

Unit 2: Bloodborne Pathogens and Basic Wound Care

1. Acquired Immune Deficiency Syndrome (AIDS) – a breakdown of the immune system cause by the human immunodeficiency virus
2. Bloodborne – any germ that lives and reproduces within the bloodstream
3. Hepatitis – inflammation of the liver as a result of a virus or toxin
4. Human Immunodeficiency Virus (HIV) – the virus which causes AIDS
5. Occupational Safety and Health Administration (OSHA) – a federal agency which sets and enforces health and safety regulations in the workplace
6. Pathogen – anything that invades the body and causes disease

Unit 3: CPR-AED

1. Aneurism – dilation of an artery due to a weak arterial wall
2. Automatic External Defibrillator (AED) – a portable electronic device that uses electrical shock to restore normal heart rhythm
3. Bradycardia – slow pulse
4. Bradypnea – slow breath
5. Cardiopulmonary Resuscitation (CPR) – a techniques used in emergencies to revive heart and lung function
6. Catastrophic injury – injury resulting in long term or permanent disability
7. Embolism – blockage or occlusion of a blood vessel caused by an embolus
8. Myocardial infarction – damage to the heart due to lack of oxygen, disease, or occlusion of the coronary artery. Also known as a heart attack
9. Stroke – the blockage of a blood vessel to the heart which leads to an inadequate blood supply to the brain. Also known as a cerebrovascular accident
10. Sudden death syndrome – immediate death as a result of a massive cardiac arrest due to undetected heart abnormalities
11. Tachycardia – rapid pulse
12. Tachypnea – rapid breathing

Unit 4: On Field Management

1. Concussion – a traumatic brain injury in which the brain is damaged within the skull as a result of a fall or a blow to the head
2. Crepitus – a crackling sound made by the movement of damaged bones or cartilage
3. Dermatome – an area of skin innervated by various spinal cord segments
4. Evaluation – a systematic process to determine the exact anatomical structure(s) that are damaged
5. HIPS – history, inspection, palpation, special tests. An example evaluation system which takes place during the secondary survey
6. Level of Consciousness (LOC) – the level of awareness of one's surroundings
7. Myotome – area of muscle innervated by various segments of the spinal cord
8. Primary survey – initial assessment of airway, breathing, and circulation (ABC's) to rule out life threatening injury
9. Nervous system – a network of cells devoted to the transmission of signals to and from the brain and spinal cord for various functions in the body
10. Reflexes – involuntary reaction to a stimulus
11. Secondary survey – used to attain more information about an injury including brief history, inspection/observation, and palpation of all involved structures

Unit 5: Psychosocial

1. Anxiety – a negative emotional state characterized by bouts of nervousness, worry, and apprehension and is usually followed with activation or arousal of the body
2. Counselor – credentialed specialists who offer long term support and assistance with a variety of issues that may impact a person's life
3. Five stages of grief – a person's normal response to a loss or a significant life-changing event that usually occurs in five distinct stages
4. Imaging – a technique in which an athlete vividly imagines a sensory experience in order to practice or prepare for a performance or rehabilitation activity
5. Psychiatrist – medical doctor who specializes in the prevention, diagnosis, and treatment of mental illness or instability
6. Psychologist – a credentialed social scientist who studies behavior and mental processes, generally in a research or clinical setting
7. Referral – the recommendation of a medical or paramedical professional that a patient see another medical professional with a specific area of expertise

Unit 6: Basic Tissue Response

1. Acute – an injury or disease of sudden onset
2. Afferent neurons – carry nerve impulses from the receptors towards the CNS
3. Chemical mediators – a substance or structure that transmits information between two bodily tissues
4. Chronic – an injury or disease that is recurring, lingering, or lasts longer than the sub-acute injury phase
5. Edema – excessive amount of serous fluid that occupies a body's cavity
6. Efferent neurons – carry nerve impulses away from the CNS to muscles or glands
7. Hemorrhage – excessive bleeding
8. Histamine – a substance that triggers the inflammatory response
9. Homeostasis – the body's ability to maintain internal equilibrium by adapting to its surroundings
10. Inflammation – the body's reaction of tissue to injury, irritation, or infection. Also called swelling
11. Leukocyte – white blood cells of the immune system that help defend the body against infection
12. Necrosis – death of body tissues and cells
13. Nerve pathway – afferent and efferent routes of nerve transmission
14. Neurotransmitter – a chemical used to transmit a nerve impulse across a synapse
15. Nociceptors – a receptor that transmits pain
16. Pain – an uncomfortable sensation due to injury or illness
17. Phagocyte – white blood cells that "clean up" harmful debris left behind after an inflammatory response has occurred
18. Vascular response – changes in the circulatory vessels in response to injury, illness, or therapies
19. Wolff's Law – the bone's ability to adapt and change to any stresses and/or changes placed internally and externally

Unit 7: Introduction to Modalities

1. Contraindication – a situation indicating the use of a given modality would be inappropriate
2. Electrical modality – any modality using AC or DC current that transmits electrical impulses into the tissues
3. Ground fault circuit interrupter – an electrical outlet with a safety device that will automatically shut off the electricity to prevent electrical shock
4. Hydrotherapy – the use of water to treat various injuries
5. Indication – a situation indicating the use of a given modality would be appropriate
6. Light modality – use of various light waves for therapeutic purposes laser, infrared and ultraviolet
7. Manual therapy – hands-on manipulation of anatomical structures, such as massage
8. Parameter – the guidelines or limitations set to attain a desired effect from any given modality
9. Protocol – a precise and detailed plan for a regimen of therapy
10. Therapeutic ultrasound – the use of sounds waves to create thermal and non-thermal effects on body tissues
11. Thermal modality – any modality that increases or decreases the temperature of the tissues

Unit 8: Basic Pharmacology

1. Barbiturates – drugs, ranging from sedation to anesthesia, that have depressing effects on the central nervous system
2. Cardiac drugs – drugs used to alleviate issues pertaining to the heart, such as beta blockers
3. Diuretics – drugs that increase the output of urine
4. Drug distribution – the regulated and non-regulated manner in which drugs are given in an appropriate dosage
5. Gastrointestinal drugs – used to address problems of the digestive system
6. Infection deterrents – an infection fighting drug that kills disease-causing organisms
7. Nasorespiratory drugs – drugs that work to address nasal, sinus, and respiratory problems
8. Nomenclature – drugs can have three names to identify it: chemical, generic, and trade
9. NSAIDs – Nonsteroidal anti-inflammatory drugs
10. Over the Counter (OTC) – drugs that can be purchased without prescription
11. Pain relievers – drugs used to relieve pain
12. Pharmacology – study of drugs and their effects on the body
13. Steroids – a group of chemical substances consisting of hormones, body constituents, and drugs, all used for different reasons
14. Stimulant – any drug that temporarily increases alertness and focus while decreasing fatigue

Unit 9: Techniques in Evaluation

1. Active range of motion – range of motion controlled completely by the patient
2. Anatomical position – a universal language used by healthcare professionals to describe body positioning and make anatomical reference
3. Clinical survey directional terminology – words that give you a specific way the body moves. Examples include adduction, flexion, and extension
4. Cultural considerations – considerations made for the social, emotional, racial, gender, and religious beliefs of a group of people
5. Manual muscle testing – the process of testing the strength and range of motion of a particular muscle or muscle group
6. Mechanical failure – inability to perform or gain mechanical advantage
7. Passive range of motion – range of motion directed solely by the healthcare professional
8. Resistive range of motion – range of motion in which the healthcare professional provides mild resistance through the complete range of motion